

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
22 September 2005 (22.09.2005)

PCT

(10) International Publication Number  
**WO 2005/087692 A2**

(51) International Patent Classification<sup>7</sup>: **C07B 63/00**,  
C07C 51/48, 29/86, 227/40, C07H 1/06, C07D 307/62,  
C07C 39/08, 59/265, 53/08, 55/14, 55/10, 31/20, 31/22,  
31/26

(21) International Application Number:  
PCT/US2005/005308

(22) International Filing Date: 18 February 2005 (18.02.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/548,404 27 February 2004 (27.02.2004) US

(71) Applicant (for all designated States except US): **DOW  
GLOBAL TECHNOLOGIES INC.** [US/US]; Washing-  
ton Street, 1790 Building, Midland, MI 48674 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FRANK, Timothy,**  
C. [US/US]; 5001 Foxpoint Circle, Midland, MI 48642  
(US). **DONATE, Felipe, A.** [US/US]; 4608 Lund Drive,  
Midland, MI 48642 (US). **THYNE, Thomas, C.** [US/US];  
1601 Pheasant Ridge, Midland, MI 48640 (US).

(74) Agent: **RUHR, Paula, Sanders;** The Dow Chemical Com-  
pany, Intellectual Property, P.O. Box 1967, Midland, MI  
48641-1967 (US).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ,  
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,  
ZM, ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,  
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— without international search report and to be republished  
upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: PROCESS FOR RECOVERING ORGANIC COMPOUNDS FROM AQUEOUS STREAMS CONTAINING SAME

(57) Abstract: A method for a liquid-liquid extraction of hydrophilic organic compounds from aqueous solutions thereof is described. The method generally includes intermixing a sufficient quantity of a specified glycol ether with the aqueous liquor at a first temperature to form a suspension comprising an aqueous raffinate phase and a glycol ether extract phase; separating the glycol ether extract phase from the aqueous raffinate phase; heating the glycol ether extract phase to a second, higher temperature to form a sus-  
pension comprising an aqueous extract phase containing a portion of the hydrophilic organic compound and a glycol ether raffinate phase; and separating this glycol ether raffinate phase from the aqueous extract phase. The selected glycol ether has an inverse sol-  
ubility in water and the partition ratio, value K, for the hydrophilic organic compound is greater than 0.1. This method is useful for  
recovering valuable hydrophilic organic acids produced via fermentation or produced or used in various manufacturing processes.



WO 2005/087692 A2